UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/671,229	09/27/2000	Max Hamberg	602.331USW1	8053

32294	7590	04/19/2004	

SQUIRE, SANDERS & DEMPSEY L.L.P.
14TH FLOOR
8000 TOWERS CRESCENT
TYSONS CORNER, VA 22182

EXAMINER
ALI, SYED J

ART UNIT	PAPER NUMBER
2127	12

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	**Applicant(s)**
Office Action Summary	09/671,229	HAMBERG, MAX
	Examiner	**Art Unit**
	Syed J Ali	2127

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _18 March 2004_.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _20-43_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _20-43_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
          application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

1.   This office action is in response to Amendment B, paper number 11, which was filed

March 18, 2004. Claims 20-43 are presented for examination.

2.   The text of those sections of Title 35, U.S. code not included in this office action can be

found in a prior office action.

Claim Rejections - 35 USC § 103

3.   Claims 20-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Software

Engineering: A Practitioner's Approach</u> (hereinafter SE) in view of Fertuck (<u>System Analysis &

Design With Modern Methods</u>).

As per claim 20, SE teaches the invention as claimed, including a method of

implementing an application and eliminating uncontrolled internal interdependencies within the

application (pg. 357, §13.5.1), with the application comprising a number of functional entities,

each entity comprising one or more elements (pg. 362, Fig. 13.9), and with the application

producing application output data from input data such that element output data produced by the

elements determines entity output data produced by the functional entities and the entity output

data determines the application output data (pgs. 361-363, §13.6, paragraph 5), wherein there are

interdependencies formed between the elements, between the functional entities, or between the

elements and the functional entities (pg. 363, §13.6, paragraph VI), said method comprising:

implementing high cohesion and low coupling on an element such that uncontrolled internal interdependencies within said element are eliminated (pg. 363, §13.6, paragraph VI), and such that the input data supplied to said element solely determines element output data produced by said element (pgs. 361-363, §13.6, paragraph V).

Fertuck teaches the invention as claimed, including that normalization is a way to achieve high cohesion and low coupling (pg. 464).

It would have been obvious to one of ordinary skill in the art to combine SE and Fertuck since the modularized approach of SE is shown to have advantages in implementation such as ease of maintenance, reduction of secondary effects and error propagation, and reusable modules, though the manner in which code is revised is not explicitly stated. That is, SE indicates that for modules that exhibit low cohesion or high coupling, the module should be re-evaluated and possibly redesigned. However, the manner in which this modification is made is left up to the developer. Fertuck teaches of normalization of data structures or database applications as a way to implement high cohesion and low coupling, thereby achieving the redesign suggested by SE.

As per claim 21, SE teaches the invention as claimed, including a method as recited in claim 20, wherein at least one normalized element forms a functional entity, and wherein output data of the functional entity is determined by the at least one normalized element (pgs. 361-363, §13.6, paragraph V).

As per claim 22, Fertuck teaches the invention as claimed, including a method as recited in claim 20, further comprising:

forming at least one functional entity from at least one normalized element (pg. 464); and

normalizing the at least one functional entity (pg. 464).

As per claim 23, Fertuck teaches the invention as claimed, including a method as recited in claim 20, wherein the normalized element comprises a normalized functional entity (pg. 464).

As per claim 24, SE teaches the invention as claimed, including a method as recited in claim 20, wherein the normalized element forms at least one normalized functional entity, and wherein the output data of the application is solely determined by the normalized functional entity (pgs. 361-363, §13.6, paragraph V).

As per claim 25, SE teaches the invention as claimed, including a method as recited in claim 20, wherein said normalized element forms at least one normalized functional entity, and wherein the at least one normalized functional entity is formed by joining at least two elements of said plurality of elements in parallel, as a union (pg. 361, §13.6, paragraph I).

As per claim 26, SE teaches the invention as claimed, including a method as recited in claim 20, wherein said normalized element forms at least one normalized functional entity, and wherein the at least one normalized functional entity is formed by selecting at least one item of element output data (pg. 362, figure 13.9).

As per claim 27, SE teaches the invention as claimed, including a method as recited in claim 20, wherein said normalized element forms at least one normalized functional entity, and wherein the at least one normalized functional entity is formed by specifying element output data based upon input data (pg. 362, figure 13.9).

As per claim 28, SE teaches the invention as claimed, including a method as recited in claim 20, said method further comprising the steps of:

executing a plurality of normalized elements in cascade, wherein the output data of the element affects input data of another element of the plurality of normalized elements (pg. 362, Fig. 13.9).

As per claim 29, SE teaches the invention as claimed, including a method as recited in claim 20, further comprising the steps of:

conditionally executing normalized elements, wherein when a second normalized element produces predetermined output data, input data for a first normalized element is determined, and wherein when the second normalized element does not produce the predetermined output data, no input data is determined for the first normalized element (pg. 362, figure 13.9).

As per claim 30, Fertuck teaches the invention as claimed, including a method as recited in claim 20, further comprising the steps of:

repeatedly executing the normalized element, with a number of repeated executions of a

first element being determined by output data of a second element (pg. 434).

As per claim 31, "Official Notice" is taken that although neither SE nor Fertuck teach

that the application is implemented as telephone exchange software in a mobile communication

system, such would have been obvious to one of ordinary skill in the art. Fertuck teaches of

implementing modularity mostly within database applications, while SE teaches that the modular

approach is applicable to any environment that uses software. Specifically, a modular approach

has a wide variety of applications, especially for applications that require multiple tasks, such

that functionality may be compartmentalized to reduce propagation of errors. Since telephone

exchange *software* is implemented in software, the modularized approach of SE and Fertuck

would be well suited to such an application to reduce the likelihood of errors, as well as making

implementation of software simpler by allowing small changes to individual components of the

application.

As per claim 32, SE teaches the invention as claimed, including a system for

implementing an application and eliminating uncontrolled internal interdependencies within the

application (pg. 357, §13.5.1), wherein the application comprises a number of functional entities,

each entity comprising one or more elements (pg. 362, Fig. 13.9), and wherein the application

produces application output data from input data such that element output data produced by the

elements determines entity output data produced by the functional entities and the entity output

data determines the application output data (pgs. 361-363, §13.6, paragraph 5), and wherein there

are interdependencies formed between the elements, between the functional entities, or between the elements and the functional entities (pg. 363, §13.6, paragraph VI), said system comprising:

implementing high cohesion and low coupling for one or more elements such that uncontrolled internal interdependencies within each element are eliminated (pg. 363, §13.6, paragraph VI), and such that the input data supplied to each element solely determines element output data produced by said element (pgs. 361-363, §13.6, paragraph V).

Fertuck teaches the invention as claimed, including that normalization is a way to achieve high cohesion and low coupling (pg. 464).

As per claim 33, Fertuck teaches the invention as claimed, including a system as recited in claim 32, further comprising:

forming means for forming a functional entity comprising at least one normalized element (pg. 464).

As per claim 34, Fertuck teaches the invention as claimed, including a system as recited in claim 33, further comprising:

normalizing means for normalizing the functional entity (pg. 464).

As per claim 35, Fertuck teaches the invention as claimed, including a system as recited in claim 34, further comprising:

normalizing means for treating the normalized functional entity as a normalized element (pg. 464).

As per claim 36, SE teaches the invention as claimed, including a system as recited in claim 32, further comprising:

forming means for forming an application comprising at least one normalized functional entity, and wherein the output data of the application is solely determined by the at least one normalized functional entity (pgs. 361-363, §13.6, paragraph V).

As per claim 37, SE teaches the invention as claimed, including a system as recited in claim 32, further comprising:

forming means for forming a functional entity from at least one normalized element, said forming means joining at least two elements of said plurality of elements in parallel, as a union (pg. 361, §13.6, paragraph I).

As per claim 38, SE teaches the invention as claimed, including a system as recited in claim 32, further comprising:

at least one normalized functional entity, and wherein the at least one normalized functional entity is formed by selecting at least one item of element output data (pg. 362, figure 13.9).

As per claim 39, SE teaches the invention as claimed, including a system as recited in claim 32, further comprising:

at least one normalized functional entity, and wherein the at least one normalized functional entity is formed by specifying element output data based upon input data (pg. 362, figure 13.9).

As per claim 40, SE teaches the invention as claimed, including a system as recited in claim 32, further comprising:

executing means for executing a plurality of normalized elements in cascade, wherein the output data of the element affects input data of another element of the plurality of normalized elements (pg. 362, Fig. 13.9).

As per claim 41, SE teaches the invention as claimed, including a system as recited in claim 32, further comprising:

forming means for forming a functional entity based upon at least one normalized element, wherein said at least one normalized element can be executed conditionally, and wherein when a second normalized element produces predetermined output data, input data for a first normalized element is determined, and when the second normalized element does not produce predetermined output data, no input data is determined for the first element (pg. 362, figure 13.9).

As per claim 42, Fertuck teaches the invention as claimed, including a system as recited in claim 32, further comprising:

forming means for forming a functional entity from at least one normalized element, wherein the at least one normalized element can be executed repeatedly, with a number of repeated executions of a first element being determined by output data of a second element (pg. 434).

As per claim 43, SE teaches the invention as claimed, including a system for implementing an application and eliminating uncontrolled internal interdependencies within the application (pg. 357, §13.5.1), wherein the application comprises a number of functional assemblies, each assembly comprising one or more elements (pg. 362, Fig. 13.9), and wherein the application produces application output data from input data such that element output data produced by the elements determines assembly output data produced by the functional assemblies and the assembly output data determines the application output data (pgs. 361-363, §13.6, paragraph 5), and wherein there are interdependencies formed between the elements, between the functional assemblies, and between the elements and the functional assemblies (pg. 363, §13.6, paragraph VI), said system comprising:

the one or more elements (pg. 362, Fig. 13.9); and

implementing high cohesion and low coupling for the one or more elements such that uncontrolled internal interdependencies within each element are eliminated (pg. 363, §13.6, paragraph VI), and such that the input data supplied to each element solely determines element output data produced by said element (pgs. 361-363, §13.6, paragraph V).

Fertuck teaches the invention as claimed, including that normalization is a way to achieve high cohesion and low coupling (pg. 464).

Response to Arguments

4.   Applicant's arguments with respect to claims 20-43 have been considered but are moot in view of the new grounds of rejection.

Conclusion

5.   Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (703) 305-8106. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Syed Ali
April 2, 2004

MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100